

REMARKS/ARGUMENTS

Claims 1-22 and 26-34 are pending. No claim has been amended, added, or canceled.

Claims 1, 9-17, 26-30, and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohran in view of Yanai et al. Applicants traverse the rejection. Claim 1 is directed to a method of controlling security of data in a storage system having a local disk system and a remote disk system that are coupled to at least one host computer. The method recites that the local disk system is coupled to a first host computer and performs the following steps: when a write of data is to be made to the local disk system, retrieving a previously stored encryption key; encrypting the data, the encrypting being performed by the local disk system; transferring the data to the remote disk system via a first communication link.

The remote disk system performs the following steps: determining whether the data is to be stored in an encrypted form, the determining being performed by the remote disk system; determining an address for storage of the data in the remote disk system; if the data is to be stored in a decrypted form, decrypting and writing the data in the remote disk system; if the data is to be stored in an encrypted form, writing the data in the remote disk system without decrypting the data; and notifying the local disk system via the first communication link that the step of writing the data is complete. The first and second communication links are different.

The Examiner asserted that Ohran teaches a method of controlling security data in a storage system having a local disk system and a remote disk system that are coupled to at least one host computer. The local and remote disk systems are mass storage devices that store data according to the controls provided by the host computers (or primary and secondary systems 12 and 14). They do not perform the intelligent functions performed by the local and remote disk systems of claim 1. The Examiner states, "Ohran does not teach the encrypting being performed by the local disk system or the determining being performed by the remote disk system, notifying the local system via the first communication link that the step of writing the data is complete...(page 3)" Applicants agree.

The Examiner, however, asserts that Yanai remedies the above defects of Ohran. He states, "Yanai et al. teaches the encrypting being performed by the local disk system or the determining being performed by the remote disk system (col. 6, lines 16-37) (page 4)." Applicants respectfully disagree.

At col. 6, lines 16-37, Yanai discloses that it uses two different modes for copying data from a primary storage system to a remote secondary system: (1) real-time mode, and (2) point-in-time mode. Nowhere does it disclose or suggest that the local disk system performs the encryption, as the Examiner alleges. Similarly, Yanai does not disclose that the remote disk system determines whether the data is to be stored in an encrypted form. Applicants provide below the section of Yanai cited by the Examiner and respectfully ask the Examiner to point out wherein this section does Yanai disclose the encrypting and determining steps recited in claim 1.

The present invention is designed to provide the copying of data from a primary data storage system to a physically remote secondary data storage system transparent to the user, and external from any influence of the primary host which is coupled to the primary data storage system. The present invention is designed to operate in at least two modes, the first being a real-time mode wherein the primary and secondary storage systems must guarantee that the data exists and is stored in 2 physically separate data storage units before i/o completion. That is, before channel end and device end is returned to the host. Alternatively, the present invention is designed to operate in point-in-time mode wherein the data is copied to the remote or secondary data storage system asynchronously from the time when the primary or local data processing system returns the i/o completion signal (channel end and device end) to the primary host systems. This eliminates any performance penalty if the communication link between the primary and secondary data storage systems is too slow, but creates the additional needs to manage the situation where data is not identical or in "sync" between the primary and secondary data storage systems. Col. 6, lines 16-37.

Applicants respectfully submit that Yanai does not remedy the defects that the Examiner admitted Ohran as having. Claim 1 is allowable.

Claim 9 recites, "storing an encryption key in a memory in the local disk system; transmitting the encryption key to the remote disk system and storing it in a memory there via a first communication link coupling the local and remote disk systems; in the local disk system, determining a boundary for use of the encryption key by the local disk system; in the remote disk system, receiving the boundary from the local disk system by the remote disk system; in both the

local and the remote disk systems, determining a relationship of present operations to the boundary by each of the local and remote disk systems; in both the local and the remote disk systems, waiting for the boundary and then changing the encryption key for data stored thereafter by each of the local and remote disk systems, wherein the local disk system is coupled to a first host computer via a second communication link that is different than the first communication link." Yanai does not disclose "storing an encryption key in a memory in the local disk system," among other features and thus does not remedy the deficiency of Ohran. Claim 9 is allowable at least for this reason. Similarly, claims 12, 13, 16, 17, 26, 27, 30, and 32 are allowable at least for the reasons set forth above.

Claims 2-8, 18-22, 31, 33, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohran in view of Yanai et al. and further in view of Jacobson. Applicants traverse the rejection. The above claims depend from the independent claims and are allowable at least for the reasons that their independent claims are allowable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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